

Exhibit I

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF VIRGINIA
Alexandria Division

- - - - -

UNITED STATES OF AMERICA,
et al,

Plaintiffs,

vs.

GOOGLE, LLC,

Defendant.

- - - - -

Case Number:

1:23-cv-00108-
LMB-JFA

Video Deposition of
ROBIN E. LEE, Ph.D.
Friday, March 15, 2024
9:39 a.m.

Veritext Job 6456904
Reported by: Laurie Donovan, RPR, CRR, CLR

<p style="text-align: right;">Page 26</p> <p>1 institutional details, learning as much as I</p> <p>2 can before applying these economic</p> <p>3 frameworks.</p> <p>4 BY MR. ISAACSON:</p> <p>5 Q Before the fall of 2019, did you</p> <p>6 consider yourself an expert in digital</p> <p>7 advertising?</p> <p>8 MR. NAKAMURA: Objection to form.</p> <p>9 THE WITNESS: Again, I'm here testifying</p> <p>10 as an economic expert with training in</p> <p>11 industrial organization.</p> <p>12 BY MR. ISAACSON:</p> <p>13 Q So before the fall of 2019, before</p> <p>14 you're hired to testify in this case, did you</p> <p>15 consider yourself an expert in digital</p> <p>16 advertising?</p> <p>17 MR. NAKAMURA: Objection to form.</p> <p>18 THE WITNESS: Probably depends on what</p> <p>19 you referred to as "expert," but I knew a</p> <p>20 little bit of it, about digital advertising,</p> <p>21 based on my prior experience, but I have not</p> <p>22 published any work on digital advertising</p>	<p style="text-align: right;">Page 28</p> <p>1 You've told me that several times, but as of</p> <p>2 today, would you call yourself an expert in</p> <p>3 digital advertising?</p> <p>4 MR. NAKAMURA: Objection to form.</p> <p>5 THE WITNESS: So here I'm testifying as</p> <p>6 an economic expert and as somebody who has</p> <p>7 studied digital advertising, in particular,</p> <p>8 web display advertising, at some length for</p> <p>9 the past several years.</p> <p>10 BY MR. ISAACSON:</p> <p>11 Q So would you -- as of today, would you</p> <p>12 call yourself an expert in digital advertising?</p> <p>13 MR. NAKAMURA: Objection to form.</p> <p>14 THE WITNESS: I don't have -- I'm not</p> <p>15 applying a label to myself of that form.</p> <p>16 BY MR. ISAACSON:</p> <p>17 Q You're aware that the United States is</p> <p>18 seeking damages in this case on behalf of federal</p> <p>19 agency advertisers; is that right?</p> <p>20 A I'm aware.</p> <p>21 Q And you are not expressing opinions in</p> <p>22 this case about whether those federal agencies</p>
<p style="text-align: right;">Page 27</p> <p>1 specifically, although some of my work,</p> <p>2 including that on cable television markets,</p> <p>3 touched upon advertising, and in my teaching,</p> <p>4 I do, as an industrial organization</p> <p>5 economist, cover advertising as an economic</p> <p>6 concept.</p> <p>7 BY MR. ISAACSON:</p> <p>8 Q So based on that work you had done as</p> <p>9 you -- that touched on digital advertising, before</p> <p>10 the fall of 2019, did you consider yourself to be</p> <p>11 an expert in digital advertising?</p> <p>12 MR. NAKAMURA: Objection to form.</p> <p>13 THE WITNESS: I don't think I ever</p> <p>14 called myself an expert --</p> <p>15 BY MR. ISAACSON:</p> <p>16 Q And I understand --</p> <p>17 A -- in digital advertising.</p> <p>18 Q Thank you. I didn't mean to interrupt</p> <p>19 you.</p> <p>20 And I understand that based on your</p> <p>21 background in economics, you are applying your</p> <p>22 expertise to digital advertising in this case.</p>	<p style="text-align: right;">Page 29</p> <p>1 have suffered any antitrust injury, correct?</p> <p>2 MR. NAKAMURA: Objection to form.</p> <p>3 THE WITNESS: So I'm expressing the</p> <p>4 opinion that certain actions taken by Google</p> <p>5 with respect to its ad tech products have</p> <p>6 harmed customers of its products which</p> <p>7 include advertisers.</p> <p>8 BY MR. ISAACSON:</p> <p>9 Q And are you expressing any opinion in</p> <p>10 this case about whether the federal agency</p> <p>11 advertisers have suffered any damages?</p> <p>12 MR. NAKAMURA: Objection to form.</p> <p>13 THE WITNESS: So again, my opinion is</p> <p>14 that certain actions taken by Google has</p> <p>15 harmed advertisers and publishers that use ad</p> <p>16 tech products to transact open-web display</p> <p>17 advertising.</p> <p>18 BY MR. ISAACSON:</p> <p>19 Q Are you expressing any opinions in this</p> <p>20 case about the amount of any damages of any</p> <p>21 federal agency advertiser?</p> <p>22 MR. NAKAMURA: Objection to form.</p>

8 (Pages 26 - 29)

<p style="text-align: right;">Page 30</p> <p>1 THE WITNESS: I'm not providing a</p> <p>2 precise number of damages for these</p> <p>3 particular advertising customers.</p> <p>4 BY MR. ISAACSON:</p> <p>5 Q And based on your background in</p> <p>6 economics and industrial organization, as I</p> <p>7 understand it, you are not offering expert</p> <p>8 opinions on the meaning of any individual</p> <p>9 documents in this case?</p> <p>10 MR. NAKAMURA: Objection to form.</p> <p>11 THE WITNESS: Can you restate your</p> <p>12 question or rephrase it?</p> <p>13 BY MR. ISAACSON:</p> <p>14 Q Are you offering expert opinions on the</p> <p>15 meaning of any individual documents in this case?</p> <p>16 MR. NAKAMURA: Objection to form.</p> <p>17 THE REPORTER: Meaning?</p> <p>18 MR. ISAACSON: Meaning, yes.</p> <p>19 THE WITNESS: I'm not.</p> <p>20 MR. NAKAMURA: Same objection.</p> <p>21 BY MR. ISAACSON:</p> <p>22 Q And you are not expressing an opinion in</p>	<p style="text-align: right;">Page 32</p> <p>1 opinion that certain Google products, in</p> <p>2 particular -- I'm sure we'll discuss them --</p> <p>3 Google Ads, AdX, and DFP, possess substantial</p> <p>4 and sustained market power protected by</p> <p>5 significant barriers to entry, which are</p> <p>6 associated with economic profits.</p> <p>7 BY MR. ISAACSON:</p> <p>8 Q Are you expressing an opinion in this</p> <p>9 case as to the amount of economic profits for</p> <p>10 Google ad tech products?</p> <p>11 MR. NAKAMURA: Objection to form.</p> <p>12 THE WITNESS: As I stated before, I'm</p> <p>13 expressing an opinion regarding the extent of</p> <p>14 market power for these products which would</p> <p>15 be associated with a positive economic</p> <p>16 profit.</p> <p>17 BY MR. ISAACSON:</p> <p>18 Q All right. My question went to the</p> <p>19 amount of economic profits.</p> <p>20 Are you expressing an opinion in this</p> <p>21 case as to the amount of economic profits for</p> <p>22 Google ad tech products?</p>
<p style="text-align: right;">Page 31</p> <p>1 this case on the accounting profits of any Google</p> <p>2 product area; is that correct?</p> <p>3 MR. NAKAMURA: Objection to form.</p> <p>4 THE WITNESS: Can you restate your</p> <p>5 question, please.</p> <p>6 BY MR. ISAACSON:</p> <p>7 Q Sure. You are not expressing an opinion</p> <p>8 in this case on the accounting profits of any</p> <p>9 Google product area in this case; am I correct?</p> <p>10 MR. NAKAMURA: Objection to form.</p> <p>11 THE WITNESS: So in my reports I do</p> <p>12 discuss accounting profits and their</p> <p>13 differences from economic profits, but I'm</p> <p>14 not expressing opinions as to the level of</p> <p>15 accounting profits for Google, Google's ad</p> <p>16 tech products.</p> <p>17 BY MR. ISAACSON:</p> <p>18 Q Are you expressing an opinion in this</p> <p>19 case as to the level of economic product --</p> <p>20 economic profits for Google's ad tech products?</p> <p>21 MR. NAKAMURA: Objection to form.</p> <p>22 THE WITNESS: So I'm expressing an</p>	<p style="text-align: right;">Page 33</p> <p>1 MR. NAKAMURA: Objection to form.</p> <p>2 THE WITNESS: My opinion is that Google</p> <p>3 Ads, AdX and DFP are earning economic profits</p> <p>4 consistent with their possession of</p> <p>5 substantial and sustained market power.</p> <p>6 BY MR. ISAACSON:</p> <p>7 Q And have you expressed an opinion as to</p> <p>8 the amount of those profits, those economic</p> <p>9 profits that you just referred to?</p> <p>10 A I believe that is saying something about</p> <p>11 the amount, what I just said.</p> <p>12 Q Is saying -- are you able to express an</p> <p>13 opinion as to the amount of economic profits from</p> <p>14 Google ad tech products in a dollar amount?</p> <p>15 MR. NAKAMURA: Objection to form.</p> <p>16 THE WITNESS: So I'm not providing a</p> <p>17 specific dollar number for that measure.</p> <p>18 BY MR. ISAACSON:</p> <p>19 Q Before you were retained in this case,</p> <p>20 had you heard the term "open-web display</p> <p>21 advertising"?</p> <p>22 A So before I was retained by this case, I</p>

<p style="text-align: right;">Page 34</p> <p>1 recall hearing the term "open-web" in contrast 2 with "walled garden," and I recall being familiar 3 with display advertising. I think I noted my 4 experience 15 years prior, looking into this 5 space. 6 Q And before this case, had you heard the 7 term "open-web display advertising" as one term 8 with all four words? 9 A I do not recall having come across those 10 four words together. 11 (Exhibit 1 was marked for 12 identification.) 13 (Exhibit 2 was marked for 14 identification.) 15 (Exhibit 3 was marked for 16 identification.) 17 BY MR. ISAACSON: 18 Q We've marked as Exhibit 1 your opening 19 expert report, we've marked as Exhibit 2 your 20 rebuttal report, and Exhibit 3 is your 21 supplemental report. 22 You have them all in front of you for</p>	<p style="text-align: right;">Page 36</p> <p>1 MR. NAKAMURA: Objection to form. 2 THE WITNESS: I'm sorry. Can you repeat 3 your question, please. 4 BY MR. ISAACSON: 5 Q Sure. 6 So in that bullet point, it lists 7 markets, potential markets for publisher ad 8 servers, ad exchanges, and advertiser ad networks, 9 all for open-web display advertising. You were 10 asked to determine whether those are relevant 11 antitrust markets. 12 My question is: Were you asked to 13 consider any other market definition than those 14 potential market definitions? 15 A So I recall looking into whether there 16 is a relevant market for demand-side platforms, a 17 relevant antitrust product market for demand-side 18 platforms. 19 Q All right. Other than looking into a 20 relevant market for demand-side platforms, were 21 you asked to consider any other potential relevant 22 markets other than those which are listed in</p>
<p style="text-align: right;">Page 35</p> <p>1 ease of access at any point. 2 If I can ask you to look at paragraph 7 3 of your opening report. That's Exhibit 1. In 4 paragraph 7 you say, "I have been asked by counsel 5 at the Department of Justice," and then you list a 6 number of things. 7 In the first bullet point, you say -- 8 again, with reference to "I have been asked by 9 counsel at the Department of Justice to -- 10 Determine whether publisher ad servers, ad 11 exchanges, and advertiser ad networks are open-web 12 display advertising, both worldwide . . . and in 13 the United States, are relevant antitrust 14 markets." 15 I skipped a parenthetical about how 16 worldwide is developed. 17 The -- were you asked to consider any 18 other market definition that would be at issue in 19 this case other than what is said there, whether 20 publisher ad servers, ad exchanges and advertiser 21 ad networks for open-web display advertising are 22 relevant antitrust markets?</p>	<p style="text-align: right;">Page 37</p> <p>1 paragraph 7? 2 MR. NAKAMURA: I'll instruct Professor 3 Lee to answer to the extent to which he 4 considered the other markets that counsel 5 asked about, not any communications from 6 counsel to him. 7 THE WITNESS: So I also considered a 8 relevant antitrust product market for a 9 broader set of bidding tools, which includes 10 advertiser ad networks and demand-side 11 platforms, but as I note in my reports, 12 concluded that the smaller subset of 13 advertiser ad networks comprises a relevant 14 antitrust product market. 15 BY MR. ISAACSON: 16 Q So other than markets for publisher ad 17 servers, ad exchanges, advertiser ad networks, all 18 for open-web display advertising, or a relevant 19 market for demand-side platforms or for ad 20 networks and demand-side platforms, did you 21 consider any other potential market definitions in 22 this case?</p>

<p style="text-align: right;">Page 38</p> <p>1 MR. NAKAMURA: Objection to form.</p> <p>2 THE WITNESS: So in this case, as I note</p> <p>3 in my rebuttal report, I considered</p> <p>4 alternative markets that were proposed by</p> <p>5 Dr. Israel and potentially Doctor or</p> <p>6 Professor Ghose, but those alternative market</p> <p>7 definitions proposed by Google's experts or</p> <p>8 others that I examined and opined are not</p> <p>9 appropriate for evaluating Google's market</p> <p>10 power over its ad tech products that I</p> <p>11 examined for evaluating the competitive</p> <p>12 effects of its conduct that I examined.</p> <p>13 BY MR. ISAACSON:</p> <p>14 Q The -- do you know if the term "open-web</p> <p>15 display advertising" existed before counsel for</p> <p>16 the Department of Justice asked you to consider</p> <p>17 that term for your market definition?</p> <p>18 MR. NAKAMURA: Objection to form.</p> <p>19 THE WITNESS: So as an economist, I'm</p> <p>20 interpreting "open-web display advertising"</p> <p>21 as referring to a set of transactions with</p> <p>22 certain characteristics used to be precise</p>	<p style="text-align: right;">Page 40</p> <p>1 display advertising or the underlying digital</p> <p>2 advertisements themselves?</p> <p>3 BY MR. ISAACSON:</p> <p>4 Q I'm going to ask you if you've seen</p> <p>5 industry sources reporting market shares for any</p> <p>6 products that would include the term "open-web</p> <p>7 display advertising."</p> <p>8 A So can I ask you to rephrase the</p> <p>9 question? You're asking if I've seen market</p> <p>10 shares of products that sell open-web display</p> <p>11 advertising?</p> <p>12 Q Any type of products. Does it -- like</p> <p>13 it can be any market, any market share where the</p> <p>14 terms "open-web display advertising" is used.</p> <p>15 MR. NAKAMURA: Objection to form.</p> <p>16 THE WITNESS: So in my -- maybe I'm not</p> <p>17 understanding your question correctly, but in</p> <p>18 my report, for example, I've seen a Google</p> <p>19 document talking about -- discussing DFP's</p> <p>20 share across various measures of what they</p> <p>21 refer to as "addressable inventory" or "not</p> <p>22 walled garden," and the addressable inventory</p>
<p style="text-align: right;">Page 39</p> <p>1 about the products that I'm examining.</p> <p>2 I have seen materials -- I don't recall</p> <p>3 the precise dates for those documents --</p> <p>4 where both the term "open-web," the term</p> <p>5 "display advertising," as well as I've seen</p> <p>6 documents from firms where "open-web display</p> <p>7 advertising," those four words, have been</p> <p>8 used.</p> <p>9 BY MR. ISAACSON:</p> <p>10 Q Do you believe you've seen documents</p> <p>11 where all four words, "open-web display</p> <p>12 advertising," were used together?</p> <p>13 A I recall seeing documents produced by</p> <p>14 Adobe and Facebook, although one of them may be an</p> <p>15 industry source that used open-web display.</p> <p>16 Q The -- have you seen any industry</p> <p>17 sources that report market shares for open-web</p> <p>18 display advertising?</p> <p>19 MR. NAKAMURA: Objection to form.</p> <p>20 THE WITNESS: So if I may ask you to be</p> <p>21 more specific. Are you referring to ad tech</p> <p>22 products that facilitate the sale of open-web</p>	<p style="text-align: right;">Page 41</p> <p>1 overlaps with open-web publishers, publishers</p> <p>2 that don't -- that aren't using integrated ad</p> <p>3 tech tools to sell their inventory.</p> <p>4 BY MR. ISAACSON:</p> <p>5 Q We can talk about addressable inventory</p> <p>6 later, but whether it's advertising, technology,</p> <p>7 whatever product you want to name, have you seen</p> <p>8 any industry sources that report market shares for</p> <p>9 a market using the words "open-web display</p> <p>10 advertising"?</p> <p>11 MR. NAKAMURA: Objection to form.</p> <p>12 THE WITNESS: So those documents I</p> <p>13 referenced earlier, I don't recall if they</p> <p>14 report any market share figures. I don't</p> <p>15 recall, sitting here today.</p> <p>16 BY MR. ISAACSON:</p> <p>17 Q And let me see if I can -- so there are</p> <p>18 public industry sources that report on -- report</p> <p>19 data for digital advertising, correct?</p> <p>20 MR. NAKAMURA: Objection to form.</p> <p>21 THE WITNESS: Yes, I believe there are</p> <p>22 public sources, including e-Marketer, that</p>

<p style="text-align: right;">Page 42</p> <p>1 looks at digital advertising.</p> <p>2 BY MR. ISAACSON:</p> <p>3 Q Have you seen any industry sources that</p> <p>4 report public data that would reflect shares of</p> <p>5 any market that uses the term "open-web display</p> <p>6 advertising"?</p> <p>7 MR. NAKAMURA: Objection to form.</p> <p>8 THE WITNESS: I think, as I mentioned</p> <p>9 before, sitting here today, I don't recall if</p> <p>10 any of the documents that I remember using</p> <p>11 the terms "open-web display" report market</p> <p>12 share figures or rely upon public data.</p> <p>13 BY MR. ISAACSON:</p> <p>14 Q And is it also the case that, sitting</p> <p>15 here today, you don't recall any documents from</p> <p>16 Google that report market shares using the term</p> <p>17 "open-web display advertising"?</p> <p>18 A Sitting here today, I do not recall any</p> <p>19 Google documents using the term "open-web display</p> <p>20 advertising" that report market shares for ad tech</p> <p>21 products.</p> <p>22 Q And sitting here today, from the</p>	<p style="text-align: right;">Page 44</p> <p>1 using the term "open-web" to refer to publisher</p> <p>2 inventory or publisher web inventory that is not</p> <p>3 sold through integrated ad tech products, and it's</p> <p>4 a description of what that set of inventory is.</p> <p>5 I use "display advertising" to refer to</p> <p>6 a particular form of digital advertising, and so</p> <p>7 when I use those terms, it's meant to clarify the</p> <p>8 sets of products and transactions over which</p> <p>9 certain calculations are made.</p> <p>10 Q I'm not asking you how you're using the</p> <p>11 term or why you're using the term.</p> <p>12 You, in your reports, do estimates of</p> <p>13 market shares where -- different markets where you</p> <p>14 use the term "open-web display advertising,"</p> <p>15 correct?</p> <p>16 A So the relevant product markets that I</p> <p>17 evaluate are those involving advertiser ad</p> <p>18 networks, ad exchanges, and publisher ad servers,</p> <p>19 so those are the markets.</p> <p>20 Q So you estimate market shares in your</p> <p>21 report for a market of publisher ad servers for</p> <p>22 open-web display advertising, correct?</p>
<p style="text-align: right;">Page 43</p> <p>1 third-party documents that have been made</p> <p>2 available to you from this case, am I correct you</p> <p>3 do not recall any third-party documents that use</p> <p>4 the term "open-web display advertising" to report</p> <p>5 market shares for any products?</p> <p>6 A So as I noted earlier, I recall</p> <p>7 third-party documents using the term "open-web</p> <p>8 display." I do not recall if they reported market</p> <p>9 shares for specific ad tech products.</p> <p>10 Q To your knowledge, is this case the</p> <p>11 first time anyone has tried to assemble market</p> <p>12 share data using the term "open-web display</p> <p>13 advertising"?</p> <p>14 A I'm not quite sure what you mean by</p> <p>15 assemble data using a term. I understand what it</p> <p>16 means to assemble data restricted to a set of</p> <p>17 products with certain features.</p> <p>18 Q So let me explain.</p> <p>19 You have, in your reports, estimated</p> <p>20 market shares for markets where you're using the</p> <p>21 term "open-web display advertising," correct?</p> <p>22 A So as an economist, in my reports I'm</p>	<p style="text-align: right;">Page 45</p> <p>1 A These are publisher ad servers which are</p> <p>2 used to transact open-web display advertising.</p> <p>3 Q Is that a yes?</p> <p>4 A I'm sorry. What is your question?</p> <p>5 Q In your report, you estimate market</p> <p>6 shares for publisher ad servers for open-web</p> <p>7 display advertising, correct?</p> <p>8 A I do provide market shares for publisher</p> <p>9 ad servers that facilitate the transaction of</p> <p>10 open-web display advertising.</p> <p>11 Q And in your reports, you report market</p> <p>12 shares for ad exchanges for open-web display</p> <p>13 advertising, correct?</p> <p>14 A I do report market shares for ad</p> <p>15 exchanges that facilitate the sale of open-web</p> <p>16 display advertising.</p> <p>17 Q And in your, in your report, you report</p> <p>18 market shares for advertiser ad networks for</p> <p>19 open-web display advertising, correct?</p> <p>20 A In my report I do report market shares</p> <p>21 for --</p> <p>22 THE REPORTER: Hold on just a moment.</p>

<p style="text-align: right;">Page 66</p> <p>1 you know, my opinions regarding market 2 definition are based on the totality of 3 evidence that I present. 4 I think a strong set of evidence that I 5 discuss which supports the validity of the 6 relevant product markets is Google's exercise 7 of market power over its AdX, Google Ads and 8 DFP product, right? 9 So I'm looking at not just a single 10 piece of evidence, but the totality of 11 evidence to form my opinions regarding market 12 definition. 13 BY MR. ISAACSON: 14 Q If products have incremental value of a 15 certain magnitude, you would consider that 16 evidence that they are not close substitutes; is 17 that correct? 18 MR. NAKAMURA: Objection to form. 19 THE WITNESS: I think that it is an 20 important consideration whether or not a set 21 of, here, digital advertisements provide 22 distinct value over other forms of digital</p>	<p style="text-align: right;">Page 68</p> <p>1 differences between products can be evidence that 2 two products are -- I'm doing a double negative 3 now, so let me just ask you: In order for -- do 4 you agree that incremental differences of a 5 certain magnitude can be evidence that two 6 products are not close substitutes? 7 MR. NAKAMURA: Objection to form. 8 THE WITNESS: I guess the question is 9 imprecise. What do you, what do you mean 10 by -- I think what I said before is examining 11 whether, in this case, open-web display 12 advertising has distinct incremental value 13 over other forms of digital advertising is an 14 important consideration in my analysis of 15 whether the relevant product markets I 16 evaluate are valid and pass the hypothetical 17 monopolist test. 18 BY MR. ISAACSON: 19 Q And how do you determine whether 20 something has -- two products have -- one product 21 has distinct incremental value? 22 A I think a large part of my report talks</p>
<p style="text-align: right;">Page 67</p> <p>1 advertising. I think that's important to 2 understand, but when I get to market 3 definition, I'll be focusing on the tools 4 used to transact those digital 5 advertisements, and there I will also 6 consider the extent to which the underlying 7 tools can be replaced with other 8 alternatives. 9 BY MR. ISAACSON: 10 Q And as an economist, how would you look 11 at -- how would you decide whether, what magnitude 12 is necessary for -- I'll start that question over. 13 In order for incremental differences to 14 be evidence that two products are not close 15 substitutes, how would you define the magnitude 16 that's necessary of that difference? 17 MR. NAKAMURA: Objection to form. 18 THE WITNESS: So the preamble to your 19 question is not something that I stated or 20 necessarily agree with. 21 BY MR. ISAACSON: 22 Q You don't agree that incremental</p>	<p style="text-align: right;">Page 69</p> <p>1 about reasons why open-web display advertising is 2 an important form of monetization for -- let's 3 focus on publishers. 4 So for publishers, open-web display 5 advertising is significant evidence that speaks to 6 the value it has for helping them monetize their 7 web inventory. 8 Q How do I, how do I determine whether 9 something, in your view, would have distinct 10 incremental value? For example, does Coke have 11 distinct incremental value over Pepsi? 12 A Well, I'm not valuating soft drinks in 13 this matter. What I'm doing is showing here, for 14 the purpose of looking at ad tech products, 15 publishers derive significant value, additional 16 monetization from being able to sell their web 17 inventory through display ads. 18 And if they did not have access to those 19 tools that allow them to sell display ads, they 20 would be foregoing a significant amount of 21 advertising revenue, which would likely lead to a 22 reduction of content and investment.</p>

<p style="text-align: right;">Page 70</p> <p>1 And in my report, I discuss why other</p> <p>2 forms of digital advertising are unlikely to be</p> <p>3 effective replacements for display advertising.</p> <p>4 Q And in your view, can two products that</p> <p>5 have distinct incremental value from one another</p> <p>6 be close substitutes?</p> <p>7 MR. NAKAMURA: Objection to form.</p> <p>8 THE WITNESS: I think, I think this is</p> <p>9 why one needs to look at the totality of the</p> <p>10 evidence and to look at other things to</p> <p>11 inform whether, in this case, ad tech</p> <p>12 products like ad exchanges, if controlled by</p> <p>13 a hypothetical monopolist, could exercise</p> <p>14 market power over competitive levels.</p> <p>15 BY MR. ISAACSON:</p> <p>16 Q Let me repeat the question, because</p> <p>17 you're saying "I think this is why," and I don't</p> <p>18 know what you're talking about.</p> <p>19 In your view, can two products that have</p> <p>20 distinct incremental value from one another be</p> <p>21 close substitutes?</p> <p>22 MR. NAKAMURA: Objection to form.</p>	<p style="text-align: right;">Page 72</p> <p>1 or not ad tech products, ad exchanges, ad</p> <p>2 networks, advertiser ad networks, and publisher ad</p> <p>3 servers --</p> <p>4 Q I don't know what that has to do with my</p> <p>5 question. Let me repeat my question.</p> <p>6 Can two products that have significant</p> <p>7 incremental value differences from one another be</p> <p>8 close substitutes?</p> <p>9 A It's difficult to provide a general</p> <p>10 statement. This is why I'm looking at the</p> <p>11 totality of evidence to inform my opinions</p> <p>12 regarding market definition.</p> <p>13 Q The -- and you are using the term "close</p> <p>14 substitutes" for your analysis in this case,</p> <p>15 because you find the term "reasonable substitute"</p> <p>16 to be too vague; is that correct?</p> <p>17 A Well, the "reasonable substitute"</p> <p>18 language you used in your question without</p> <p>19 appropriate context, I wanted to clarify.</p> <p>20 So in my report, when I use "close</p> <p>21 substitute," what I'm talking about is</p> <p>22 substitution that's sufficient to constrain the</p>
<p style="text-align: right;">Page 71</p> <p>1 THE WITNESS: I think I answered this</p> <p>2 question before, that it will depend on other</p> <p>3 things, including magnitude. If there's de</p> <p>4 minimus incremental value, then it may not be</p> <p>5 the case.</p> <p>6 BY MR. ISAACSON:</p> <p>7 Q I'm using your term, "distinct</p> <p>8 incremental value," right? In your view, can two</p> <p>9 products that have distinct incremental value from</p> <p>10 one another be close substitutes?</p> <p>11 A So when I'm using "distinct incremental</p> <p>12 value" here for the purposes of open-web display</p> <p>13 advertising, I'm describing why it provides</p> <p>14 significant incremental value to the customers who</p> <p>15 rely upon it.</p> <p>16 Q So can two products that have</p> <p>17 significant incremental value from one another be</p> <p>18 close substitutes?</p> <p>19 A So if we're talking about digital</p> <p>20 advertising, I'm not evaluating, for the present</p> <p>21 market definition, substitution among digital</p> <p>22 advertising. The focus of my inquiry is whether</p>	<p style="text-align: right;">Page 73</p> <p>1 exercise of market power, and it depends on the</p> <p>2 context we're using it, right?</p> <p>3 So for market definition, I am applying</p> <p>4 an economic framework known as the hypothetical</p> <p>5 monopolist test, and for that test, it's important</p> <p>6 to consider the extent to which a hypothetical</p> <p>7 monopolist, over a set of products, would be</p> <p>8 constrained by alternatives, outside of the</p> <p>9 products it controls, from exercising significant</p> <p>10 market power over competitive levels.</p> <p>11 Q So you've tried to, you've tried to</p> <p>12 clarify the context of the question.</p> <p>13 I'm asking you: You're using the term</p> <p>14 "close substitute" for your analysis in this case</p> <p>15 rather than "reasonable substitutes," because you</p> <p>16 think the language "reasonable substitutes" is too</p> <p>17 vague; is that correct?</p> <p>18 A That statement I made earlier was in the</p> <p>19 context of the question you asked. I don't know</p> <p>20 if I used term "reasonable" elsewhere in my</p> <p>21 reports, which might have been a different</p> <p>22 context, but I was saying for today, when I use</p>

<p style="text-align: right;">Page 74</p> <p>1 the term close substitutes and when you use close</p> <p>2 substitutes in my reports, the description I</p> <p>3 provided earlier is what I mean by that.</p> <p>4 Q Today you prefer the term "close</p> <p>5 substitutes" because you think the term</p> <p>6 "reasonable substitutes" is vague; is that</p> <p>7 correct?</p> <p>8 A At present, without having provided a</p> <p>9 definition for that, I would say that it is not</p> <p>10 clear. I want to be precise.</p> <p>11 Q The -- you agree that a variety of ad</p> <p>12 tech products work in conjunction with one another</p> <p>13 to facilitate display advertising transactions,</p> <p>14 correct?</p> <p>15 MR. NAKAMURA: Objection to form.</p> <p>16 THE WITNESS: So particular ad tech</p> <p>17 products, the ones I discuss, advertiser ad</p> <p>18 networks, ad exchanges, publisher ad servers,</p> <p>19 are often used in conjunction with one</p> <p>20 another by advertisers and publishers to</p> <p>21 transact open-web display advertising.</p> <p>22</p>	<p style="text-align: right;">Page 76</p> <p>1 These products form what is known as the 'ad tech</p> <p>2 stack.'"</p> <p>3 That's what you've written there,</p> <p>4 correct?</p> <p>5 A That is what I wrote there.</p> <p>6 Q And you would consider Google to have an</p> <p>7 ad tech stack; is that right?</p> <p>8 A So the way that I'm using the term here</p> <p>9 is to refer to the set of all the products that</p> <p>10 are used to facilitate display advertising, so</p> <p>11 publisher ad servers, ad exchanges and advertiser</p> <p>12 bidding tools, which include DSPs and advertiser</p> <p>13 ad networks. Those products overall are what I,</p> <p>14 what I am referring to as an, as the ad tech</p> <p>15 stack.</p> <p>16 Q So that wasn't my question.</p> <p>17 My question was: Do you consider Google</p> <p>18 to have an ad tech stack?</p> <p>19 A So I consider Google to be a firm that</p> <p>20 offers products within what is known as the ad</p> <p>21 tech stack.</p> <p>22 Q You consider Google to offer something</p>
<p style="text-align: right;">Page 75</p> <p>1 BY MR. ISAACSON:</p> <p>2 Q And you would refer to ad tech products</p> <p>3 working in conjunction with one another as an "ad</p> <p>4 tech stack"; is that right?</p> <p>5 MR. NAKAMURA: Objection to form.</p> <p>6 THE WITNESS: I think I and other</p> <p>7 industry participants have used the term "ad</p> <p>8 test stack" to refer to the set of products,</p> <p>9 not necessarily them working in conjunction</p> <p>10 with one another. It's a set of products</p> <p>11 that, you know, facilitate the sale of</p> <p>12 open-web display advertising.</p> <p>13 MR. NAKAMURA: Counsel, we've been going</p> <p>14 for about an hour and 15.</p> <p>15 MR. ISAACSON: Let me just -- I'll be</p> <p>16 done with this in a minute.</p> <p>17 BY MR. ISAACSON:</p> <p>18 Q Paragraph 53 of your opening report,</p> <p>19 which is page 26, in paragraph 53 you write, "A</p> <p>20 variety of ad tech products work in conjunction</p> <p>21 with one another to facilitate display advertising</p> <p>22 transactions between publishers and advertisers.</p>	<p style="text-align: right;">Page 77</p> <p>1 that's within the ad tech stack but not to offer</p> <p>2 itself an ad tech stack; is that correct?</p> <p>3 A Again, I'm using the ad tech stack to</p> <p>4 refer to these three -- I say, called them</p> <p>5 "layers" of ad tech products, and Google offers</p> <p>6 products in each of those layers.</p> <p>7 Q Do you consider Google to offer an ad</p> <p>8 tech stack with those three layers?</p> <p>9 A I can't answer your question. I don't</p> <p>10 consider Google to offer the stack. The stack</p> <p>11 refers to the set of all the products that are in</p> <p>12 these layers, and Google offers products contained</p> <p>13 within these layers. In particular, the ones I</p> <p>14 focus on are Google Ads, AdX and DFP.</p> <p>15 Q Paragraph 53 you say, "At a high level,</p> <p>16 the ad tech stack can be described as comprising</p> <p>17 three layers," and then you define the three</p> <p>18 layers as "publisher ad servers, ad exchanges and</p> <p>19 advertiser bidding tools."</p> <p>20 Does Google offer ad tech with publisher</p> <p>21 ad servers, ad exchanges, and advertiser bidding</p> <p>22 tools?</p>

<p style="text-align: right;">Page 78</p> <p>1 A So Google offers a publisher ad server, 2 an ad exchange, an advertiser ad network, and a 3 demand-side platform. 4 Q And at a high level, do you believe 5 Google is offering a, is offering an ad tech 6 stack? 7 MR. NAKAMURA: Objection to form. 8 THE WITNESS: So at a high level, I'm 9 referring to the ad tech stack, which 10 represents -- I think I said this before -- 11 all the products that are in these different 12 layers, and again, Google offers products 13 which are contained within this broader ad 14 tech stack which describes these different 15 layers. 16 BY MR. ISAACSON: 17 Q Do you deny that Google is offering, at 18 a high level, an ad tech stack consisting of three 19 layers that include publisher ad servers, ad 20 exchanges, and advertiser bidding tools? 21 MR. NAKAMURA: Objection to form. 22 THE WITNESS: So how I and other -- I</p>	<p style="text-align: right;">Page 80</p> <p>1 THE VIDEOGRAPHER: Going off the record 2 at 11:02 a.m. 3 (Whereupon, a short recess was 4 taken.) 5 THE VIDEOGRAPHER: Going back on the 6 record at 11:19 p.m. You may proceed. 7 (Exhibit 4 was marked for 8 identification.) 9 BY MR. ISAACSON: 10 Q Marked as Lee Exhibit 4 is a document 11 dated November 2020, Bates-stamped 12 GOOG-DOJ-AT-OO855803 to 813. 13 If you look at page 807 at the bottom -- 14 take a look at 807 at the bottom. 15 You referred earlier in the deposition 16 to a document that referred to -- it had a market 17 share and used the term "addressable inventory"? 18 A I did refer to a document. This is not 19 the one I had in mind. 20 Q Okay. You cited it. We took a shot at 21 it, because it says "addressable inventory," and 22 you cite it at footnote 252 of your report.</p>
<p style="text-align: right;">Page 79</p> <p>1 believe other industry participants have used 2 the term "ad tech stack" is to refer to this 3 entire -- I'm going to use loosely the word 4 "industry," but essentially the set of 5 products falling into these different layers. 6 So no single firm offers the entire ad 7 tech stack, because the ad tech stack has 8 different participants, although Google does 9 have a very large share of each of these 10 layers, but is not the only provider of 11 products. 12 BY MR. ISAACSON: 13 Q So Google does not offer an ad tech 14 stack, in your view? 15 MR. NAKAMURA: Objection to form. 16 THE WITNESS: The way I am using the 17 term, and I put it in quotes, "ad tech stack" 18 refers to, I think I said in the last answer, 19 the entirety of these layers, all of the 20 products that are in each of these layers. 21 MR. ISAACSON: Let's take a break. 22 MR. NAKAMURA: Okay.</p>	<p style="text-align: right;">Page 81</p> <p>1 MR. NAKAMURA: That's at page 81. 2 THE WITNESS: So footnote 252? 3 BY MR. ISAACSON: 4 Q Yes. 5 A I'm citing to page 808. 6 Q That might be an error, because 807 says 7 "addressable inventory" and 808 does not. 8 A But footnote 252 is attached to a 9 sentence that states "a 2020 Google" -- 10 THE REPORTER: Could you slow down? Is 11 attached to a statement -- 12 THE WITNESS: To a statement that is not 13 referring to addressable inventory. 14 BY MR. ISAACSON: 15 Q But -- so but page 807 is not the 16 document you were referring to that -- referring 17 to addressable inventory and having a market 18 share? 19 It will help you to look at 807 to 20 answer this question. 21 A So 807 I see later in my report, in 22 Figure 41, it does show this. I was thinking in</p>

Errata Sheet for the Deposition Transcript of Professor Robin S. Lee**Case Name:** *United States et al v. Google LLC*, No. 1:23-cv-00108-LMB-JFA (E.D. Va.)**Depo. Date:** March 15, 2024**Deponent:** Robin Lee

Page	Line	Correction	Reason for Correction
10	10	Change “White?” to “pretty wide?”	Transcription error
17	6	Change “9:48 pm” to “9:49 am”	Transcription error
23	11	Change “Dr. Weintrop” to “Dr. Weintraub”	Transcription error
33	19	Change “in” to “for”	Transcription error
38	2	Change “I note” to “noted”	Transcription error
38	7	Change “or” to “are”	Transcription error
38	11	Change “for” to “or”	Transcription error
44	13	Change “different” to “for”	Transcription error – glitch in audio
58	20	Add “display advertising” after “open-web”	Transcription error
59	3	Change “customer” to “customers”	Transcription error
59	4	Add “product” before “markets”	Transcription error
65	13	Change “advertise bits” to “advertisements”	Transcription error
69	4 – 5	Change “So for publishers, open-web display advertising is significant evidence” to “So for publishers, open-web display advertising -- there is significant evidence”	Transcription error
69	12	Change “valuating” to “evaluating”	Transcription error
73	20	Add “the” before “term”	Transcription error
74	1	Change “you use” to “I use”	Transcription error
80	6	Change “p.m.” to “a.m.”	Transcription error
80	12	Change “GOOG-DOJ-AT-00855803 to” to “GOOG-DOJ-AT-00855803 through”	Transcription error and spelling for clarity
94	13	Change “(indecipherable) -- elsewhere” to “as I noted earlier elsewhere --”	Transcription error
107	9	Change “ad networks I provided data” to “ad networks that provided data”	Transcription error
108	1	Change “curtailed, as you noted,” to “; Criteo, as you noted;”	Transcription error
109	8	Change “them are of these” to “them -- or of these - _”	Transcription error

112	4	Change “this application” to “its applications”	Transcription error
112	5	Change “those were present” to “it was present”	Transcription error
115	16	Change “the web and ad property” to “a web and an app property”	Transcription error
117	14	Change “display, with regards” to “display. With regards”	Transcription error
126	8 – 9	Change “this app component” to “there was an app component”	Transcription error
127	14	Change “Google display network” to “Google Display Network”	Capitalization for clarity
128	1	Change “DFPs” to “DFP”	Transcription error
129	5	Change “DC360” to “DV360”	Transcription error
129	13	Add double quotation mark after “rivals.”	Transcription error
129	21	Change “methods to monopolization” to “methods of monopolization”	Transcription error
130	2	Change “to rivals” to “of rivals”	Transcription error
132	7	Change “firm” to “firm’s”	Transcription error
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
143	16	Change “In paragraphs 12 and 3” to “In paragraph 12 on page 3”	Transcription error
146	14	Change “advertisers side” to “advertiser side”	Transcription error
162	8	Change “open bidding” to “Open Bidding”	Capitalization for clarity
174	16	Change “accommodation” to “competition”	Transcription error
180	2 – 3	Change “experience in” to “experiments and”	Transcription error
180	21	Change “AdX’s” to “Ads-AdX”	Transcription error
181	20	Change “Ads, AdX’s” to “Ads-AdX”	Transcription error
184	8	Remove extra space before “de minimus”	Formatting for clarity
189	15	Change “anyone can have last-look over” to “any one to have last-look over”	Transcription error
196	8	Change “shares” to “share”	Transcription error
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
199	9	Change “Exhibit 7” to “Lee Exhibit 7”	Transcription error
200	9 – 10	Change “whether – the value of whether” to “whether he’s evaluated”	Transcription error
200	11	Change “antitrust” to “antitrust”	Transcription error
201	11	Change “the” to “this”	Transcription error

202	3	Change “it as” to “as a”	Transcription error
203	1	Change “advertiser ad network --” to “advertiser ad network product --”	Transcription error
206	7	Change “average than a disproportionate” to “average, and a disproportionate”	Transcription error
[REDACTED]	[REDACTED]	[REDACTED] [REDACTED]	[REDACTED]
207	18	Change “zero zero” to “zero-zero”	Punctuation for clarity
208	6	Change “zero zero” to “zero-zero”	Punctuation for clarity
208	16 – 17	Change “Could I inspect that real briefly before I hand it back to you?” to “And, Professor Lee, could I just inspect that briefly before you take a look and I’ll hand it back to you?”	Transcription error
208	18	Change “Okay” to “Here you go”	Transcription error
208	20	Change “I’ve given you Figure 1 [sic] and drawn” to “In Figure -- I’ve given you Figure 1 [sic] and drawn -- and drawn”	Transcription error
209	17	Remove “then” before “an increase”	Transcription error
211	1 – 2	Change “are we referring to Figure 16 instead of Figure 1?” to “I’d like to note that we’re referring to Figure 16 and I think you said Figure 1, so I just want to make that clear.”	Transcription error
212	9	Change “Like none of my reports -- ” to “So, as I said in my reports,”	Transcription error
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED] [REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
227	19	Insert “Which paragraph” after “Counsel?”	Transcription error
227	22	Change “Actually, the heading.” to “Actually, the heading—won’t even go to the paragraph.”	Transcription error
229	7	Change “Let me pause there” to “The -- let me pause there”	Transcription error
234	7	Change “analysis” to “analyses”	Transcription error
236	2	Change “AdX’s” to “Ads-AdX”	Transcription error
236	22	Insert “to” before “DFP”	Transcription error

239	2	Change “controlling” to “after controlling”	Transcription error
242	1 – 2	Change “could stop for a break” to “could stop soon, that’d be great.”	Transcription error
244	1	Insert quotations around “quality-adjusted.”	Punctuation for clarity
263	2	Change “they” to “I”	Transcription error
264	11	Change “E10” to “B-10”	Transcription error
267	2	Change “is” to “has”	Transcription error
288	20	Change “yield” to “yield,”	Transcription error
292	2	Change “AdX was allowed” to “AdX -- was -- allowed”	Transcription error
292	8	Change “in the” to “into”	Transcription error
296	5	Change “Abrontes” to “Abrantes”	Transcription error
296	6	Change “Abrontes” to “Abrantes”	Transcription error
296	11	Change “to” to “through”	Transcription error
298	13	Change “, which is really only a decade” to “-- which was really only at the start of the decade”	Transcription error
299	6	Change “RTV” to “RTB”	Transcription error
299	21	Change “Abrontes” to “Abrantes”	Transcription error
303	1	Change “it is cited? I mean this” to “is it cited? I mean is this”	Transcription error
305	13	Replace “?” with “.”	Transcription error
307	5	Change “I don’t recall.” to “Sitting here today, I don’t recall.”	Transcription error

307	8 – 9	Change “which is discussing unified pricing,” to “which is discussing unified pricing rules,”	Transcription error
307	15	Add a single quotation mark in front of “raises”	Lee Report quotes Jonathan Bellack starting at “raises”
307	16	Change “publics, referring pubs are” to “pubs’, referring to publishers, ‘are”	Transcription error
307	17	Add a single quotation mark after “harder.”	End of Jonathan Bellack quote
309	11	Change “buyer-specifically” to “buyer-specific”	Transcription error
309	22	Change “Abrontes” to “Abrantes”	Transcription error
[REDACTED]			
313	12	Add “It’s not isolated.” After answer.	Transcription error – missed in crosstalk
319	7	Change “unfeasible” to “infeasible”	Transcription error
[REDACTED]			
323	22	Change “which you discuss” to “which -- you -- discuss”	Transcription error

I have inspected and read my deposition and have listed all changes and corrections above, along with my reasons therefor.

Date: 4/22/24 Signature: 